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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,937	06/26/2003	Ichirou Miyagawa	Q76019	3417
23373	7590	05/26/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			PHAM, HAI CHI	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 05/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,937

Applicant(s)

MIYAGAWA, ICHIROU

Examiner

Hai C. Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10, 17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (U.S. 6,108,283) in view of Lissotschenko et al. (U.S. 6,437,896).

Fujita et al. discloses in Figs. 25A-B an array refracting element (light beam dividing element 71) comprising a refracting member (64, Fig. 13) having a unit surface shape for dividing one light beam into two light beams (Fig. 25B) by ejecting the one incident light beam toward different positions (in the y-direction), wherein the array refracting element is configured to arrange the two refracting members (72 and 73) in pair unit in an array shape in a direction orthogonal to a light beam dividing direction (light beam dividing element 71 having two refracting members consisting of the transparent flat plate 72 and the wedge-shaped element 73 arranged in the x-direction orthogonal to light beam dividing y-direction).

Fujita et al. fails to disclose the array refracting element comprising plural pair units of first and second refracting members, the first and second refracting members having sloped surface in opposite direction, at least one of the refracting members

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having plural sloped surfaces, the diffracting element in the form of an array, and the pair units being arranged adjacent to each other.

Lissotschenko et al. discloses the array refracting element comprising plural pair units of a light beam deviation element that divides the incident light beam into at least two light beams, the light beam deviation element comprising an array of refracting members having adjacent sloped surfaces directed in opposite direction (Figs. 2, 3).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the light beam dividing element of Fujita et al. as an array with different sloped surfaces as taught by Lissotschenko et al. The motivation for doing so would have been to correct an image distortion that may arise during the beam deviation as suggested by Lissotschenko et al.

Fujita et al. further teaches:

- (claim 2) the unit surface shape is a shape for dividing the one incident light beam into different angular orientations and ejecting the divided light beams (the surface having flat plate 72 and the wedge-shaped element 73),
- (claim 3) the unit surface shape of the array refracting element is a shape for dividing and ejecting the one incident light beam so that an optical axis of the ejected light beams is parallel to an optical axis of the light beam (the upper ejected light beam passing through the flat plate 72 having its optical axis parallel to that of the incident light beam) (Fig. 25B),

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- (claim 4) the array refracting element is configured using optical glass (the light beam dividing element 71 as well as the alternate light beam dividing element 34 being made of glass material),
- (claim 5) the two refracting members are a first refracting member (flat plate 72) having a rectangular shape in plan view (flat surface), and a second refracting member (wedge-shaped element 73) having, at [one of] a light beam incident side [or a light beam ejecting side], a rectilinear sloped surface from one end to another end in the direction of the division of the light beam (the wedge-shaped element 73 having a sloped surface along the light beam dividing y-direction).

3. Claims 11-16, 18-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichiro (JP 2000-284206) in view of Fujita et al.

Ichiro, an acknowledged prior art, discloses an exposure recording device comprising a light source (LD, Fig. 1) for ejecting a light beam emitted in a broad area for at least a main-scanning direction, a condensing optical system (42) for condensing the light beam emitted from the light source on the recording medium (F), an array refracting element, which includes a refracting member (64, Fig. 13) having a unit surface shape for dividing one light beam (L) into two light beams (L1 and L2) by ejecting the one incident light beam toward different positions (on the recording film F), wherein the array refracting element is configured to arrange the two refracting members in pair unit in an array shape for dividing the incident light beam into two light beams (the prism 64 having a pair of exit surfaces 66a and 66b slanted in the auxiliary

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scanning direction indicated by the arrow Y). With regard to claim 14, Ichiro further teaches the exposure recording device having an multiple exposure head (82, Fig. 15) comprising a plurality of exposure units (84a-84g), each of which is identical as in structure to the single exposure unit (12), and thus would include an array of prisms (64) as pair units.

Ichiro fails to teach the pair of refracting members being arranged perpendicular to the light beam dividing direction.

Fujita et al. discloses in Figs. 25A-B an array refracting element (light beam dividing element 71) comprising a refracting member (64, Fig. 13) having a unit surface shape for dividing one light beam into two light beams (Fig. 25B) by ejecting the one incident light beam toward different positions (in the y-direction), wherein the array refracting element is configured to arrange the two refracting members (72 and 73) in pair unit in an array shape in a direction orthogonal to a light beam dividing direction (light beam dividing element 71 having two refracting members consisting of the transparent flat plate 72 and the wedge-shaped element 73 arranged in the x-direction orthogonal to light beam dividing y-direction).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to arrange the pair of refracting members of Ichiro in a direction orthogonal to the light beam dividing direction as taught by Fujita et al. since Fujita et al. suggests that such arrangement could be provided as an alternative arrangement of the light beam dividing member, which has the pair of refracting

member arranged in the same direction of the light beam dividing direction, and wherein the result would be the same.

Ichiro also teaches:

- the array refracting element (prism 64) is disposed at a position at which a far field pattern of the light beam emitted from the light source is formed (the prism 64 being disposed closed to the recording medium F) (Fig. 12),
- an inputting component for inputting resolution information showing resolution of an image formed on the recording medium by the scanning exposure (the resolution data being inputted into the control circuit 49) (Fig. 4), and a moving component in which the array refracting element is removed from the optical axis of the light beam emitted from the light source when the resolution shown by the resolution information is a predetermined first resolution (resolution $S = 2.K0$ dpi), and the array refracting element is moved so as to be placed on the optical axis when the resolution shown by the resolution information is a second resolution (resolution $S = K0$ dpi), which is lower than the first resolution (the prism being moved in and out of the path of the optical axis of the light beam for changing the resolution) (Fig. 12),
- the resolution (2-KO dpi) would be conformed to the claimed relationship (Fig. 16).

Response to Arguments

4. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new grounds of rejection presented in this Office action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**HAI PHAM
PRIMARY EXAMINER**

May 23, 2005